

REMARKS

I. Drawing Changes

Figures 1 to 4 were not in a form that complies with U.S. Patent Office Rules, because they contained unlabeled empty boxes.

For better comprehension and to comply with U.S. Patent Office Rules drawing sheets 1 to 4 have been replaced by replacement sheets 1 to 4. The boxes in replacement figures 1 to 4 have been provided with labels based on the specification to comply with the rules for figures.

II. Obviousness Rejection based on Zhuang and Herzberg

Claims 1 to 3, 9, 10 and 12 were rejected under 35 U.S.C. 103 (a) as unpatentable over Zhuang, et al, in view of Herzberg, et al (referred to below as "Herzberg").

Zhuang, et al, IEEE Transactions on Vehicular Technology, discloses performing a channel pre-encoding in a base state depending on the known channel properties of the transmitter. The Office Action admits that this reference does not teach that the pre-encoding (pre-equalization) takes place in a modulator and that the transmissions are sent over several channels.

U.S. Patent 5,881,108 (Herzberg) discloses a type of pre-encoding (pre-equalization) depending on the channel properties of the return channel. However this reference does not disclose wireless transmission over a plurality of

radio channels from a first radio station to a second radio station. There is no suggestion that a radio station with transmitter and receiver is involved and/or that the transmission of data occurs over a radio telecommunications network in U.S. Patent 5,881,108.

According to column 4, lines 7 to 13, U.S. Patent 5,881,108 discloses that the to-channel 17 and the return channel 16 can represent several or plural communication channels, which permit transmission in both directions either in half duplex or full duplex over an arbitrary number of different types of devices, i.e. devices of a telephone switching network. The disclosed telephone-switching network is a fixed net and not a radio communication or wireless network (column 4, lines 10 to 15). Thus U.S. Patent 5,881,108 does not disclose that both DCEs 11 and 12 are radio stations.

Thus this reference does not disclose plural radio channels for transmission from a transmitter to a receiver. If several additional devices of the disclosed telephone-switching network are provided between DCEs 11 and 21 according to figure 4 (DCE =data communication equipment), communication channels must be present between communicating devices, so that altogether plural communication channels are found between them. However since the disclosed telephone-switching network is a fixed net, the communication channels are not radio channels. Since there is no disclosure that the DCEs 11 and 21 are radio stations, there is no suggestion that the communication channels are radio channels.

Thus the assertion that Herzberg teaches DCEs with plural antennas (page 3, line 3, of the Office Action) because there are several communication channels is not well founded and is incorrect. Even the use of several radio channels (which the reference does not even suggest) would not suggest the presence of multiple antennas. Multiple radio channels can be realized by using different time slots in a radio link between a single transmitter antenna and a single reception antenna.

Plural transmitting/reception antennas are recited in applicants' new method claim 14, radio station claim 20, method claim 22 and device claim 29. However plural antennas are not disclosed or suggested in either the IEEE transactions reference or U.S. 5,881,108 (Herzberg).

Also neither reference discloses or suggests plural radio channels connecting a base radio station 1 with one or more receiving radio stations 2. The DCEs of Herzberg are not disclosed as radio stations for wireless communication.

It is well established by many U. S. Court decisions that to reject a claimed invention under 35 U.S.C. 103 there must be some hint or suggestion in the prior art of the modifications of the disclosure in a prior art reference or references used to reject the claimed invention, which are necessary to arrive at the claimed invention. For example, in the In re Oetiker decision the Court said:

"[t]here must be some reason, suggestion, or motivation found in the prior art whereby a person of ordinary skill in the field of the invention would make the combination" In re Oetiker, 24 U.S.P.Q.2d, 1443, 1446(Fed. Cir. 1992).

There is no suggestion of the modifications of the subject matter of either reference necessary to arrive at either a wireless transmission method or radio station as claimed in applicants' new claims 14 to 30 including or using multiple receiving/transmitting antennae in a single station.

In addition, one skilled in the art would not find a hint or suggestion in the art to combine the secondary reference, U.S. Patent 5,881,108, with the IEEE Transactions reference, to obtain a radio transmission method or radio station in which the modulator includes means for performing a pre-equalization. The disclosures in Herzberg concern a fixed net, i.e. hard-wired system using landlines as in a telephone system or cable as in a computer network with modems. Thus one skilled in the art of wireless networks, such as those used in a mobile phone network, would not consult Herzberg for improvements in their wireless networks. One skilled in the art of radio networks, as disclosed in the IEEE transactions reference, would not find the required suggestion to perform the pre-equalization in a modulator of a radio station in a wireless network in Herzberg.

For the foregoing reasons and because of the additional features in the new claims 14 to 30, it is respectfully submitted that none of the new claims 14 to 30 should be rejected as obvious under 35 U.S.C. 103 (a) over Zhuang, et al, in view of Herzberg, et al.

**IV. Obviousness Rejection based on Zhuang, et al,
Herzberg, et al, and Huang, et al**

Claims 4 to 8 and 11 and 13 were rejected under 35 U.S.C. 103 (a) as obvious over Zhuang, et al, in view of Herzberg, et al (referred to below as "Herzberg"), and further in view of Huang, et al (referred to below as "Huang").

New dependent claim 15 includes the features of receiving signals from plural radio channels by plural antennas of the second radio station, combining the received signals linearly and sending them to a demodulator, which was claimed in canceled claim 4.

First, as noted above Herzberg does not disclose a wireless network with radio stations so that Herzberg does not disclose mobile radio stations with plural antennas. Herzberg does not disclose or suggest stations with plural antennas. Huang does not disclose a mobile station or remote receiving station with plural antennas but does disclose a base station 11 with plural receiving antennas for the return channels.

Huang discloses that the single antenna 39 in the receiver 31 of fig. 1C receives multiple signals from the transmitter 11" over multiple radio channels from multiple transmitting antennas 14, 15, 16. However the description of the operation of this part of fig. 1C in column 5, lines 36 and following does not disclose making a linear combination of received signals. Perhaps the reference to a linear combination on page 7 of the Office Action relates to the description in Fig. 3 regarding operation of the searcher 35. The searcher 35 does perform an

integration and a combination or sum of weighted time-delayed signals in summer 87, but the result of this combination is fed to MUX 36 and then to modulator 37. These latter signals are not fed to a demodulator as required by claim 15.

Also the signals from single antenna 39 are fed directly to the rake demodulator in receiver 31. The embodiment of Fig. 1C does not take a linear combination of received signals from multiple received signals since there are not plural antennas present. In contrast, note the disclosure on page 12, lines 25 to 30, of applicants' specification, where it identifies the "addition member 80" as the means for making the linear combination of received signals from the multiple reception antennae. None of the embodiments of Huang, et al, include this type of structure now claimed e.g. in method claims 15 and 27.

Also note that new mobile-station claim 20 claims a mobile station with plural antennas and with means for making the aforesaid linear combination of received signals. These features are neither suggested nor disclosed in Huang and Herzberg.

Herzberg does not disclose or suggest radio or wireless communication channels. Herzberg only discloses a fixed net and communication channels.

Regarding claims 18, 22 and 23 Huang does disclose conventional CDMA systems generally in column 1, lines 8 to 45, and discusses their disadvantages. This part of the specification of Huang is the background section. However the teaching there does not exclude CDMA systems that employ the same code between the mobile stations and the base station.

Reference to a general background section describing broad principles should not be used as a substitute for a prior art reference that discloses or suggests a particular feature of applicants' claims. If claims 18 and 22 and 23 are rejected based on a combination of references including Zhuang, et al, in view of Herzberg and Huang, then another prior art reference should be cited that actually discloses different radio or wireless mobile stations that operate with different codes.

It is respectfully submitted that the rejection of claim 7 and perhaps new claims 18, 22 and 23 based on these references actually employs "common knowledge" regarding CDMA systems generally and thus is incomplete with the support of another prior art reference that discloses the features in question of claim 7.

The methods and radio stations claimed in new claims 14 to 30 differ in unobvious ways from the systems and methods disclosed or suggested by Zhuang, et al, Huang and Herzberg.

For the foregoing reasons and because of the new features included in new claims 14 to 30, it is respectfully submitted that none of claims 14 to 30 should be rejected under 35 U.S.C. 103 (a) as obvious from Zhuang, et al, in view of Herzberg, et al, and further in view of Huang, et al.

Should the Examiner require or consider it advisable that the specification, claims and/or drawing be further amended or corrected in formal respects to put this case in condition for final allowance, then it is requested that such

amendments or corrections be carried out by Examiner's Amendment and the case passed to issue. Alternatively, should the Examiner feel that a personal discussion might be helpful in advancing the case to allowance, he or she is invited to telephone the undersigned at 1-631-549 4700.

In view of the foregoing, favorable allowance is respectfully solicited.

Respectfully submitted,


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1/4

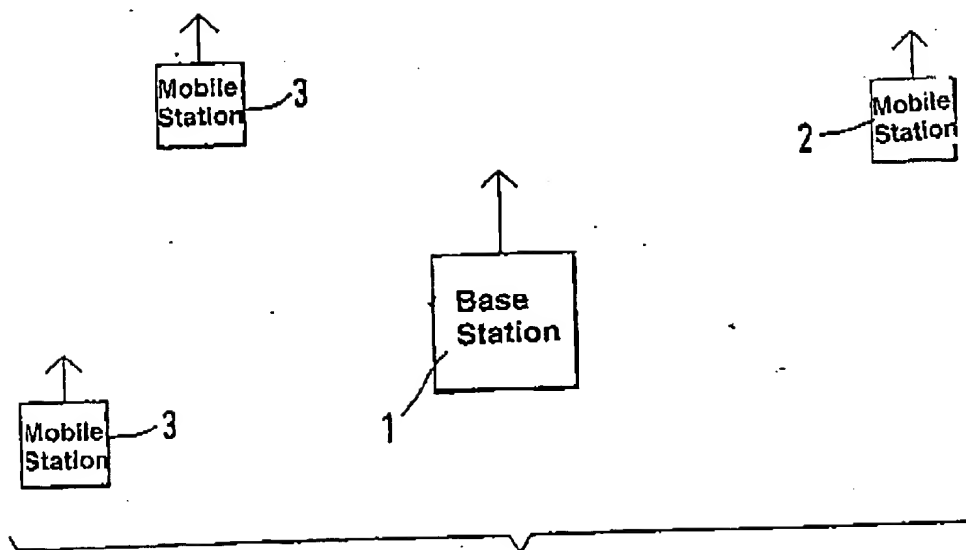
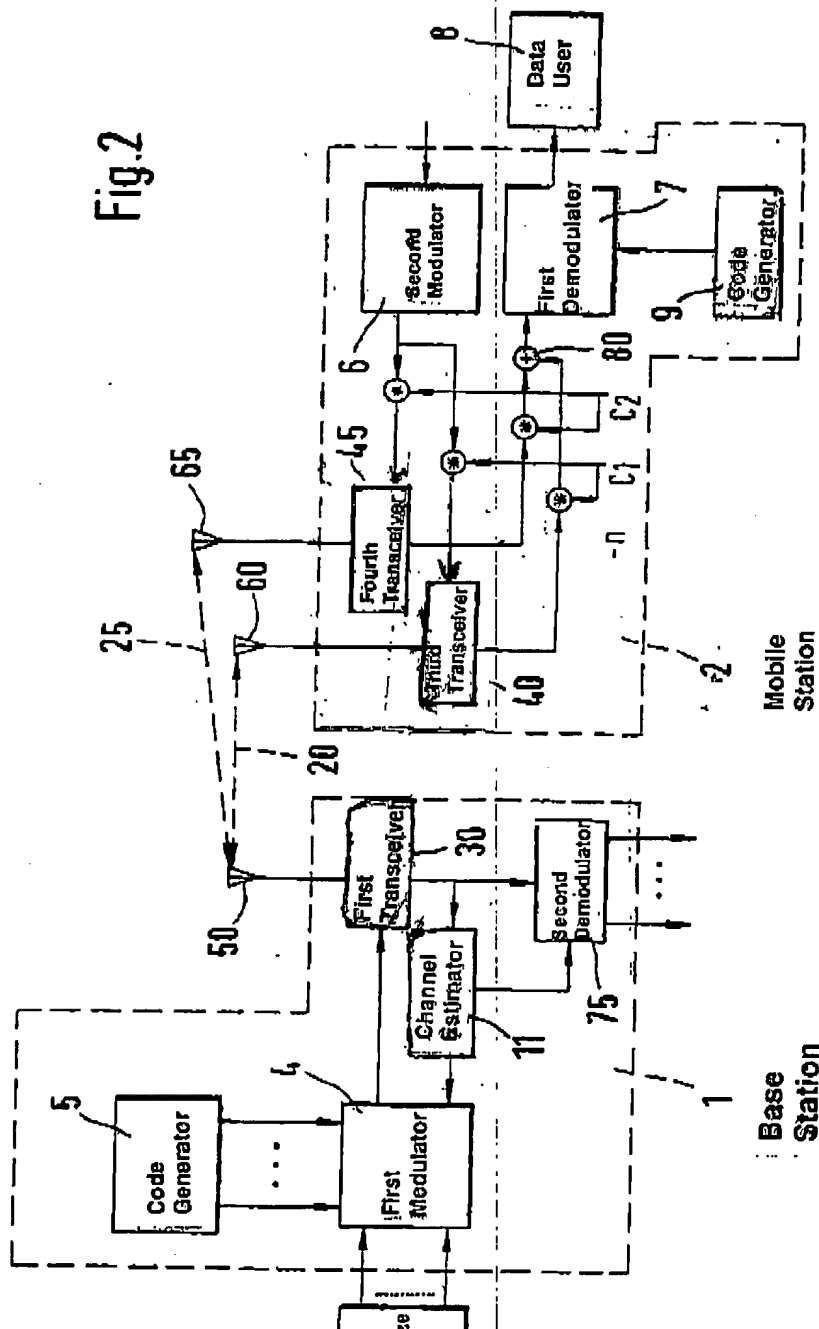


Fig.1

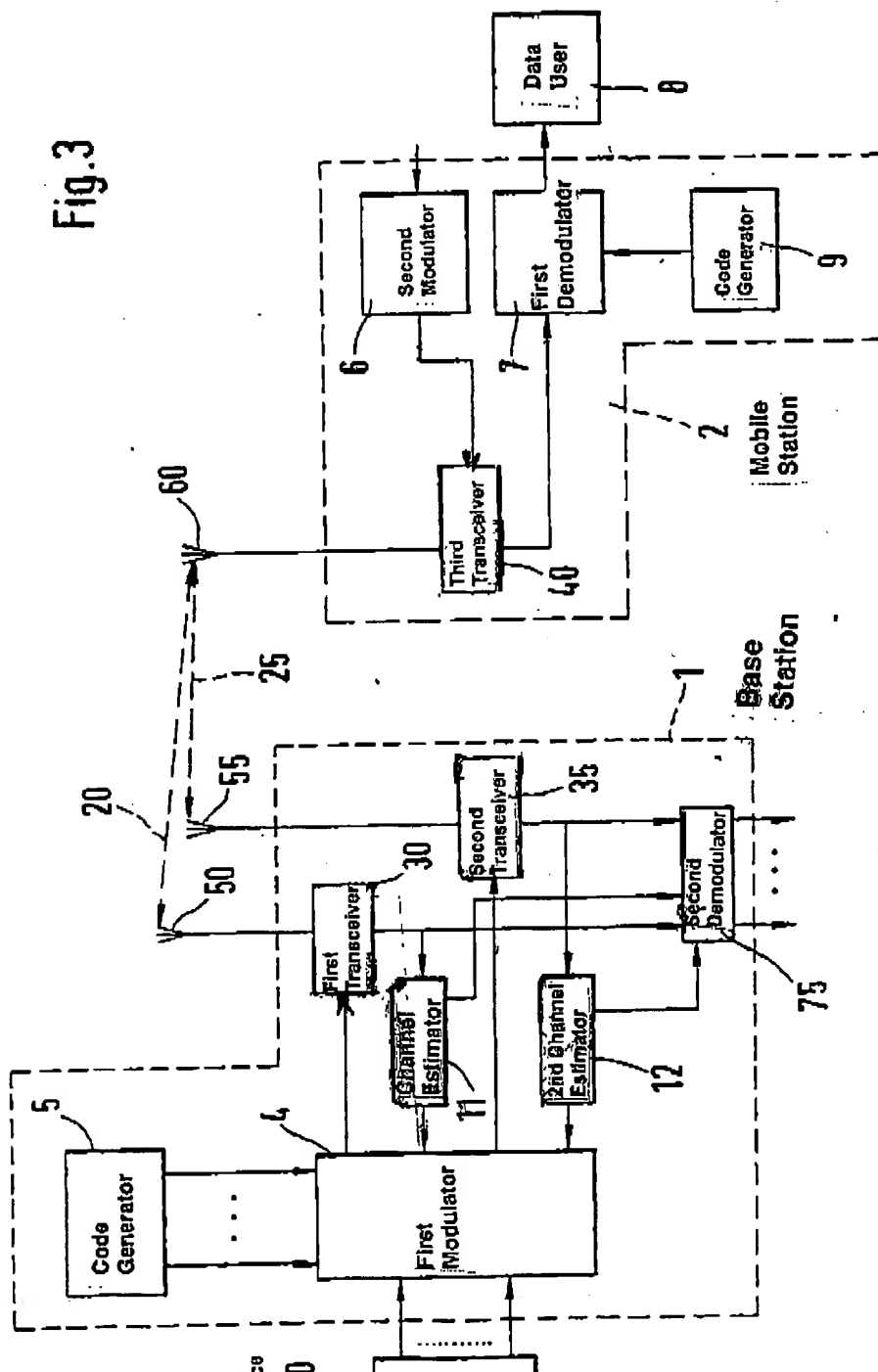
2/4

Fig. 2



3/4

Fig. 3



4/4

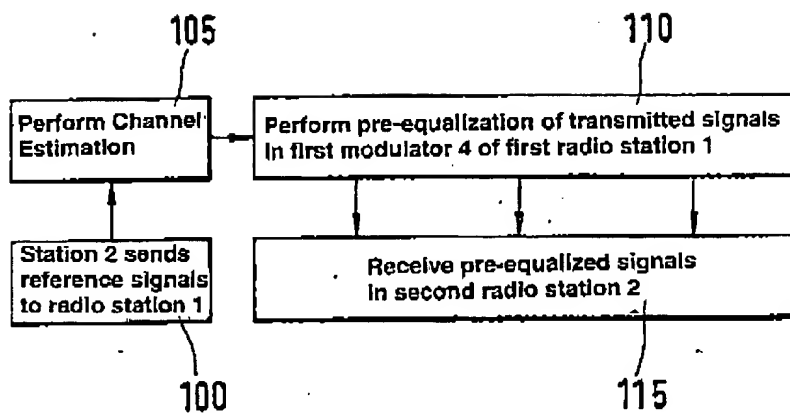


Fig.4